

# TEXAS POLIANTHES, INCLUDING MANFREDA (AGAVE SUBGENUS MANFREDA) AND RUNYONIA (AGAVACEAE)

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Recognition of the family Agavaceae by Hutchinson (1944, 1959) was one of many admirable features in his handling of the monocotyledons, but his treatment of the genera leaves much to be desired. Though largely following Rose for *Polianthes* and its allies, he does not accept *Manfreda* as distinct from *Agave*, which he places in a separate tribe from *Polianthes*. Yet Rose was surely correct in associating *Manfreda* with *Polianthes* in a group characterized by herbaceous, spineless leaves and simple inflorescences, in contrast with the persistent, spine-tipped and commonly spiny-margined leaves and simple or more commonly paniculate inflorescences of true *Agave*. Like Pax and Hoffman (1935), Hutchinson puts great reliance on the difference between regular flowers in *Agave* and irregular ones in *Polianthes*. But the flowers of the garden tuberose, *Polianthes tuberosa*, are quite symmetrical except for a slight curving of the perianth tube, while some species of *Manfreda* (which these authors treat as a subgenus of *Agave*) also have a slightly curved perianth tube. In fact this was the key feature of Rose's subgenus *Pseudomanfreda* (1899). Neither perianth shape nor inflorescence provides as sharp a distinction as the vegetative ones of leaves and duration.

If floral features are not suitable for tribal separation, the question remains whether they are suitable for delimiting genera. I find them no better for that purpose. Rose's primary feature, paired flowers versus solitary, is scarcely workable. Plants of tuberose in my garden regularly have the lower flowers solitary while the rest are paired, and herbarium specimens of Mexican species show like variation. Engelmann describes a plant of the normally solitary-flowered *Agave* (*Manfreda*) *virginica* with two or three flowers per node (though he stresses that these are not truly paired as in *Agave* proper). Differences in perianth form are really ones of degree rather than basic kind, ranging even within *Manfreda* from perfectly straight to strongly curved, while *Prochnyanthes*, with both curved and abruptly enlarged perianth, represents an extreme in the series. Sessile anthers, which set off *Runyonia*, likewise represent one extreme in a series that ranges from the conspicuously elongate filaments of such species as *Agave* (*Manfreda*) *variegata* through relatively short ones in *A. (M.) virginica* and very short ones in *Polianthes tuberosa*. I have had insufficient material for checking the peculiarity of straight versus folded stamens in bud. This is the one







- 4b. Perianth (including ovary) 26-35 mm. long; anthers 13-15 mm. long . . . . . 4. *P. lata*
- 3b. Perianth lobes 10-15 mm. long; south central and far south Texas
- 5a. Filaments exerted to less than twice the length of the perianth lobes . . . . . 5. *P. maculosa*
- 5b. Filaments exerted to 3-6 times the length of the perianth lobes . . . . . 6. *P. variegata*

1. *P. TUBEROSA* L., Sp. Pl. 1: 316. 1753. "*Habitat in India.*" Not known as wild plant; believed to have originated in Mexico (where all its close relatives are found), and to have been widely spread around the world soon after Columbus. Often cultivated in Texas. The fragrance is most evident at night. The double-flowered form is *P. tuberosa* f. *plena* Moldenke, Phytologia 3: 41, 1948.

2. *P. Runyonii* Shinnars, nom. nov. *Runyonia longiflora* Rose, Addisonia 7: 39-40, pl. 244. 1922. Type cultivated at New York; plants sent from Brownsville, Cameron Co., Texas. (Not *Polianthes longiflora* Rose, 1903.) Known to me only from the original description and plate.

3. *P. virginica* (L.) Shinnars, comb. nov. *Agave virginica* L., Sp. Pl. 1: 323. 1753. "*Habitat in Virginia.*" *Manfreda virginica* (L.) Salisbury, Gen. Pl. Fragm. p. 78. 1866. (Not seen.) The form with mottled or spotted leaves occurs with the plain green one; it certainly does not deserve to rank as a species or variety. Because of its minor horticultural interest, it may be designated *P. virginica* f. **tigrina** (Engelmann) Shinnars, comb. nov. *Agave virginica* var. *tigrina* Engelmann, Trans. Acad. St. Louis 3: 302. 1875. *A. virginica* f. *tigrina* (Engelmann) Palmer & Steyermark, Ann. Mo. Bot. Gard. 22: 507. 1935. *A. tigrina* (Engelmann) Cory, Rhodora 38: 405. 1936. *Manfreda tigrina* (Engelmann) Small ex Rose in Small, Fl. S.E. U.S. 287, 1329. 1903.

Frequent in open woods and roadsides, sandy or sandy clay soil, eastern Texas, west to Wood, Smith, Brazos, and Harris counties. Flowering from late June to late August.

4. *P. lata* (Shinnars) Shinnars, comb. nov. *Agave lata* Shinnars, Field & Lab. 19: 171-172. 1951. Still known in Texas only from the type collection, 4.7 miles south of Sherman, Grayson Co., in blackland prairie clay. Flowering from about mid June to mid July. More frequent in eastern Oklahoma (specimens seen from Muskogee, Pontotoc, and Sequoyah counties), where it grows in open oak woods.

5. *P. maculosa* (Hooker) Shinnars, comb. nov. *Agave maculosa* Hooker, Bot. Mag. 85: t. 5122. 1859. Described from plants cultivated in England, received from Texas. *A. maculata* Engelmann ex Torrey in Emory, Rept. U.S. & Mex. Boundary Survey 2: 214-215. 1859. (Not *A. maculata* Regel, 1856, nor *Polianthes maculata* Martius, 1831.) Presumably *A. maculosa* var. *brevituba* Engelmann, Trans. Acad. St. Louis 3: 301, 1875, also belongs here, as Mulford (1896) says. The type locality, "below El Paso,"



is far outside the known range of this species. Whether there was confusion as to locality, or a cultivated plant was involved, I do not know. *Manfreda maculosa* (Hooker) Rose, Contrib. U.S. Nat. Herb. 8: 17. 1903.

Frequent on sandy clay or clayey soils, south central Texas (specimens seen from Bee, Duval, Jim Wells, Karnes, San Patricio, and Wilson counties; also planted on roadside in Brooks County). Flowering mid April to mid July. Named for the mottled leaves, which are also found in *P. virginica* and *P. variegata*, with the result that plants of all three species may be mistaken for one of the others.

6. *P. variegata* (Jacobi) Shinnars, comb. nov. *Agave variegata* Jacobi, Hamburger Garten- und Blumenzeitung 21: 459-462. 1865. "We found this plant in the summer of 1856 in the Botanical Garden at Copenhagen, as *A. polyanthoides*." *Manfreda variegata* (Jacobi) Rose, Contrib. U.S. Nat. Herb. 8: 20. 1903. I have followed Rose and Berger in applying the name to our plant. The description fits very well. I have seen only one flowering specimen, from Cameron Co.: 3½ miles southeast of Russelltown, frequent on roadside, V. L. Cory 54616, July 6, 1948. A fruiting specimen with a few shrivelled flowers, from "Russelltown; a colony on roadside," H. R. Reed 1213, July 25, 1951, is apparently the same and may have come from the same place.

#### ADDITIONAL TRANSFERS

The most recent and comprehensive account of the species to be referred to *Polianthes* is that of Conzatti (1947). This is in large part a compilation from Rose's publications, but Conzatti restores *Bravoa*, transferring to it two of Rose's new species of *Polianthes* (*P. platyphylla*, *P. graminifolia*). The third, the type of the genus, had been referred by Rose to *Polianthes*, as *P. geminiflora* (Lexarza) Rose. The fourth is treated twice by Conzatti, with identical descriptions, under both *Bravoa* and *Pseudobravoa*. He accepts eight species of *Polianthes*, as in Rose's revision, but omitting the doubtful *P. gracilis* Link & Otto, suspected of being a form of *P. tuberosa*. Two species of *Prochnyanthes* are given instead of the three listed by Rose. Rose expressed doubt as to whether more than one variable species was involved. I can add nothing to his comments (1903, pp. 13-14), and for the present leave *Prochnyanthes viridescens* S. Watson and *P. Bulliana* J. G. Baker as probable synonyms of *Polianthes mexicana* Zuccarini (*Prochnyanthes mexicana* (Zuccarini) Rose). The single species of *Pseudobravoa* requires a new name under *Polianthes*, becoming *P. densiflora* (Robinson & Fernald) Shinnars, comb. nov., based on *Bravoa densiflora* Robinson & Fernald, Proc. Amer. Acad. 30 (Contrib. Gray Herb. n.s. 8): 122, 1894 (*Pseudobravoa densiflora* (Robinson & Fernald) Rose, Contrib. U.S. Nat. Herb. 8: 14, 1903). Most of the 14 species of *Manfreda* require new names under *Polianthes*. Species 6 was based on *Polianthes maculata* Martius, hence no transfer is required. (Berger calls this *Agave pubescens* Regel &



Ortgies, the name *Agave maculata* having been used twice previously, by Regel and by Engelmänn, for other species.) The transfer for species 9, *M. variegata*, has been made above; the remaining ones appear below.

**P. singuliflora** (S. Watson) Shinnery, comb. nov. *Bravoa singuliflora* S. Watson, Proc. Amer. Acad. 22: 479. 1887. *Manfreda singuliflora* (S. Watson) Rose, Contrib. U.S. Nat. Herb. 8: 16. 1903.

**P. revoluta** (Klotzsch) Shinnery, comb. nov. *Agave revoluta* Klotzsch in Otto & Deitrich, Allgem. Gartenzeitung 8: 274. 1840. (Not seen.) *Manfreda revoluta* Klotzsch) Rose, 1.c. 21.

**P. potosina** (Robinson & Greenman) Shinnery, comb. nov. *Agave potosina* Robinson & Greenman, Proc. Amer. Acad. 29 (Contrib. Gray Herb. n.s. 7): 393-394. 1894. *Manfreda potosina* (Robinson & Greenman) Rose, 1.c. 18. Berger does not mention this species.

**P. brunnea** (S. Watson) Shinnery, comb. nov. *Agave brunnea* S. Watson, Proc. Amer. Acad. 26: 156. 1891. *Manfreda brunnea* (S. Watson) Rose, 1.c. 19.

**P. debilis** (Berger) Shinnery, comb. nov. *Agave debilis* Berger, Die Agaven p. 33. 1915. (New name for the following.) *Manfreda Pringlei* Rose, 1.c. 19. (Not *Polianthes Pringlei* Rose, 1903; not *Agave Pringlei* Engelmänn ex Orcutt, 1883.)

**P. brachystachys** (Cavanilles) Shinnery, comb. nov. *Agave brachystachys* Cavanilles, Descripcion de las Plantas que Demostró en las Lecciones Publicas p. 453. 1802. (Not seen.) *Manfreda brachystachys* (Cavanilles) Rose, 1.c. 20.

**P. planifolia** (S. Watson) Shinnery, comb. nov. *Agave planifolia* S. Watson, Proc. Amer. Acad. 22: 479. 1887. *Manfreda planifolia* (S. Watson) Rose, 1.c. 22.

**P. guttata** (Jacobi & Bouché) Shinnery, comb. nov. *Agave guttata* Jacobi & Bouché, Hamburger Garten- und Blumenzeitung 21: 190. 1865. *Manfreda guttata* (Jacobi & Bouché) Rose, 1.c. 21.

**P. elongata** (Rose) Shinnery, comb. nov. *Manfreda elongata* Rose, 1.c. 21. *Agave gracilis* Berger, Die Agaven p. 33. 1915. (New name for this species, not *Agave elongata* Jacobi, 1865.)

**P. Oliverana** (Rose) Shinnery, comb. nov. *Manfreda Oliverana* Rose, 1.c. 21. *Agave Oliverana* (Rose) Berger, 1.c. 33.

**P. rubescens** (Rose) Shinnery, comb. nov. *Manfreda rubescens* Rose, 1.c. 22. *Agave pratensis* Berger, 1.c. 37. (New name for this species, not *Agave rubescens* Salm-Dyck, 1834.)

**P. jaliscana** (Rose) Shinnery, comb. nov. *Manfreda jaliscana* Rose, 1.c. 22. *Agave jaliscana* (Rose) Berger, 1.c. 38.

There are three additional names which Rose lists at the end of his account of *Manfreda* as having been introduced into cultivation as *Agave* species. He does not include them in his treatment of the species, and does not formally transfer the names to *Manfreda*. Two are recognized



by Berger, while the third (*A. conduplicata* Jacobi & Bouché) he says "remains insufficiently known" (p. 38). Since the two he accepts and describes are apparently known only from material cultivated in Europe (believed to be of Mexican origin, but the possibility of hybrid derivation exists), no transfers are proposed for them. The name used by Berger for the first of these, *Agave Alibertii* J. G. Baker, is illegitimate, there being an earlier name in the same rank, *Alibertia intermedia* Marion. The other, *Agave undulata* Klotzsch in Otto & Dietrich, is available for transfer to *Polianthes* if recognized as a valid species.

One further species was recently transferred to *Manfreda* as *M. sessiliflora* (Hemsley) Matuda, An. Inst. Biol. 31: 66, 1961 (based on *Agave sessiliflora* Hemsley, Diagn. 3: 55, 1880). This is recognized by Berger (p. 33), but Rose merely mentions it incidentally as "very close" to *Manfreda brachystachys* (Cavanilles) Rose. It is not the same as *Polianthes sessiliflora* (Hemsley) Rose, which was based on *Bravoa sessiliflora* Hemsley. A new name will be required for it if accepted as a distinct species under *Polianthes*.

Finally there are two species of *Polianthes* described by Sessé and Mocino which are unknown to me: *P. americana* (La Naturaleza ser. 2, 1, app. 54, 1888) and *P. tubulata* (Fl. Mex. ed. 2 p. 88, 1894). The latter may be only a misspelling of *P. tuberosa*, and it is possible that both names are synonyms of the Linnaean species.

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- NOTE: While this article was in galley proofs a copy of Salisbury's *Genera* was acquired for the S.M.U. Science Library. The one species of *Manfreda* is listed simply as *Agave virginica* L. Apparently the first valid publication of the combination *Manfreda virginica* was by Rose (1899, p. 155).